IN THE CLAIMS

What is claimed is:

1. A semiconductor integrated circuit, comprising:

an inductor on a substrate;

a first metal layer inside the inductor when viewed from a direction perpendicular to a surface of the substrate, a lower surface of the first metal layer being no higher than a lower surface of the inductor;

a ferromagnetic substance layer on the first metal layer, a lower surface of the ferromagnetic substance layer being lower than an upper surface of the inductor, an upper surface of the ferromagnetic substance layer being higher than the lower surface of the inductor; and

a second metal layer that covers an upper and side surface of the ferromagnetic substance layer, an upper surface of the second metal layer being no lower than the upper surface of the inductor.

2. The semiconductor integrated circuit of claim 1, wherein:

the ferromagnetic substance layer is divided into a plurality of parts that are separate from one another when viewed from the direction perpendicular to a surface of the substrate.

3. The semiconductor integrated circuit of claim 1, further including:

a multilayer interconnection layer on the substrate; and

the inductor and a laminated film are formed on an uppermost layer of the multilayer interconnection layer, the laminated film comprising the first metal layer, the ferromagnetic substance layer, and the second metal layer.

4. The semiconductor integrated circuit of claim 1, wherein:

the inductor, first metal layer and second metal layer comprise a metal selected from the group consisting of copper and aluminum.

5. The semiconductor integrated circuit of claim 1, wherein:

the ferromagnetic substance layer comprises nickel.

6. A semiconductor integrated circuit, comprising:

an inductor on a substrate; and

a ferromagnetic substance layer that does not overlap the inductor and surrounds a majority of the inductor when viewed from a direction perpendicular to a surface of the substrate.

7. The semiconductor integrated circuit of claim 6, wherein:

the ferromagnetic substance layer completely surrounds the inductor when viewed from the direction perpendicular to the surface of the substrate.

8. The semiconductor integrated circuit of claim 6, further including:

a multilayer interconnection layer provided on the substrate; and

the ferromagnetic substance layer is formed in a layer selected from the group consisting of the same layer as the inductor and a layer adjacent to the inductor.

9. The semiconductor integrated circuit of claim 6, wherein:

the ferromagnetic substance layer comprises nickel.

10. A semiconductor integrated circuit, comprising:

an inductor on a substrate; and

a plurality of separate ferromagnetic substance layers arranged in a radial fashion around a center area of the inductor on a different level than the inductor.

11. The semiconductor integrated circuit of claim 10, wherein:

each ferromagnetic substance layer has a strip-like shape and is disposed longitudinally in a direction from the center area of the inductor toward a periphery of the inductor.

12. The semiconductor integrated circuit of claim 10, further including:

a multilayer interconnection layer provided on the substrate; and

the ferromagnetic substance layers are formed in a layer different from and adjacent to a layer containing the inductor.

13. A semiconductor integrated circuit, comprising:

an inductor formed on a substrate;

an insulator layer the covers the inductor;

a ferromagnetic substance layer formed on the insulator layer over a center portion of the inductor; and

a pad, formed from a same layer as the ferromagnetic substance layer, situated in a different region of the semiconductor integrated circuit than the inductor.

14. The semiconductor integrated circuit of claim 13, wherein:

the ferromagnetic substance layer covers essentially all of the inductor when viewed from the direction perpendicular to a surface of the substrate.

15. The semiconductor integrated circuit of claim 13, further including:

a multilayer interconnection layer provided on the substrate; and

the ferromagnetic substance layer and the pad are formed on an uppermost layer of the multilayer interconnection layer.

16. The semiconductor integrated circuit of claim 13, wherein:

the ferromagnetic substance layer comprises nickel.

17. A method of manufacturing a semiconductor device, comprising the steps of:

forming a first metal layer on a substrate;

selectively forming a ferromagnetic layer on portions of the first metal layer;

forming a second metal layer that covers the ferromagnetic layer;

patterning the first and second metal layers to form a lamination film that includes the first metal layer, the ferromagnetic layer, and the second metal layer; and

forming an inductor, that surrounds the lamination film, from at least one of the layers of the lamination film.

18. The method of claim 17, further including:

before forming the first metal layer on a substrate,

forming a recessed portion in the surface on which the lamination film is to be formed, the recessed portion having a depth less than the total thickness of the first metal layer and the ferromagnetic layer combined.

19. The method of claim 17, further including:

the ferromagnetic layer comprises nickel.

20. A method of manufacturing a semiconductor device, comprising:

forming an inductor on a substrate;

forming an insulator layer that covers the inductor;

forming a film of a ferromagnetic substance on the insulator layer;

patterning the film of the ferromagnetic substance to form a

ferromagnetic substance layer over a central portion of the inductor; and

forming a pad from the film of the ferromagnetic substance in a region that is not over the inductor.